(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
27 December 2001 (27.12.2001)

PCT

(10) International Publication Number
WO 01/98623 A1

(51) International Patent Classification[7]: E21B 19/16

(21) International Application Number: PCT/US01/19014

(22) International Filing Date: 12 June 2001 (12.06.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/212,359 19 June 2000 (19.06.2000) US

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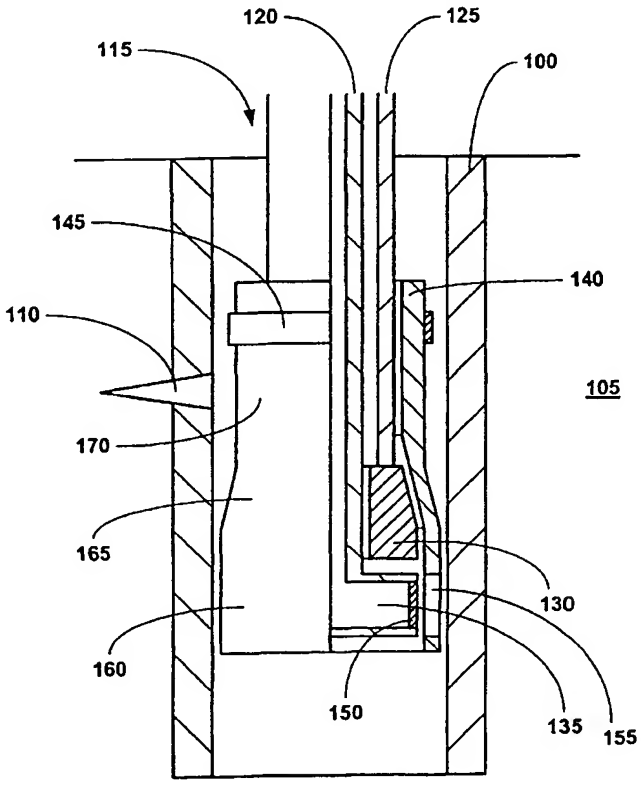
(81) Designated States *(national)*: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT,

[Continued on next page]

(54) Title: RADIAL EXPANSION OF TUBULAR MEMBERS

(57) Abstract: An apparatus and method for coupling a tubular member (140) to a preexisting structure (100). The tubular member (140) is anchored to the preexisting structure (100) and an expansion cone (130) is pulled through the tubular member (140) to radially expand the tubular member (140).



WO 01/98623 A1

RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) **Designated States** *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*
— *with amended claims*

Date of publication of the amended claims: 4 April 2002

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

AMENDED CLAIMS

[received by the International Bureau on 4 January 2002 (04.01.02);
original claims 3-13, 15-22, 28-30, 101-104, 173-183, 185-192, 198-200 amended: original claims 1, 2, 14, 24-27, 42-44, 51-54, 56, 70, 71, 99, 100, 120-122, 125-127, 129, 132, 144, 171, 172, 184, 194-197, 212-214, 220-223, 225, 239 and 240 cancelled; new claims 253-270 added (51 pages)]

1. (DELETED)

2. (DELETED)

3. The method of claim 253, wherein the lubricating fluid has a viscosity ranging from about 1 to 10,000 centipoise.

4. The method of claim 253, wherein the injecting includes:
injecting lubricating fluid into a tapered end of the expansion cone.

5. The method of claim 253, wherein the injecting includes:
injecting lubricating fluid into the area around the axial midpoint of a first tapered end of the expansion cone.

6. The method of claim 253, wherein the injecting includes:
injecting lubricating fluid into a second end of the expansion cone.

7. The method of claim 253, wherein the injecting includes:
injecting lubricating fluid into a tapered first end and a second end of the expansion cone.

8. The method of claim 253, wherein the injecting includes:
injecting lubricating fluid into an interior of the expansion cone.

9. The method of claim 253, wherein the injecting includes:
injecting lubricating fluid through an outer surface of the expansion cone.

10. The method of claim 253, wherein the injecting includes:
injecting the lubricating fluid into a plurality of discrete locations along the trailing edge portion.

11. The method of claim 253, wherein the lubricating fluid comprises:
drilling mud.

12. The method of claim 253, wherein the lubricating fluid further includes:
TorqTrim III;
EP Mudlib; and
DrillN-Slid.

13. The method of claim 253, wherein the lubricating fluid comprises:
TorqTrim III;
EP Mudlib; and
DrillN-Slid.

14. (DELETED)

15. The method of claim 254, wherein lubricating the interface between the expansion cone and the tubular member includes:
coating the interior surface of the tubular member with a first part of a lubricant; and
applying a second part of the lubricant to the interior surface of the tubular member.

16. The method of claim 254, wherein the lubricant comprises a metallic soap.

17. The method of claim 254, wherein the lubricant is selected from the group consisting of C-Lube-10, C-PHOS-58-M, and C-PHOS-58-R.

18. The method of claim 254, wherein the lubricant provides a sliding friction coefficient of less than about 0.20.

19. The method of claim 254, wherein the lubricant is chemically bonded to the interior surfaces of the tubular members.

20. The method of claim 254, wherein the lubricant is mechanically bonded to the interior surfaces of the tubular members.

21. The method of claim 254, wherein the lubricant is adhesively bonded to the interior surface of the tubular members.

22. The method of claim 254, wherein the lubricant includes epoxy, molybdenum disulfide, graphite, aluminum, copper, alumisilicate and polyethylenepolyamine.

23. A method of coupling a tubular member to a preexisting structure, comprising:

positioning the tubular member and an expansion cone within the preexisting structure;

anchoring the tubular member to the preexisting structure; and

axially displacing the expansion cone relative to the tubular member by pulling the expansion cone through the tubular member;

wherein the tubular member includes:

an annular member, including:

a wall thickness that varies less than about 8 %;

a hoop yield strength that varies less than about 10 %;

imperfections of less than about 8 % of the wall thickness;

no failure for radial expansions of up to about 30 %; and

no necking of the walls of the annular member for radial expansions of up to about 25%.

1 24. (DELETED)

1 25. (DELETED)

1 26. (DELETED)

1 27. (DELETED)

1 28. The method of claim 264, wherein the sealing members are positioned
2 adjacent to an end portion of the threaded connection.

29. The method of claim 264, wherein one of the sealing members is positioned adjacent to an end portion of the threaded connection; and wherein another one of the sealing members is not positioned adjacent to an end portion of the threaded connection.

30. The method of claim 264, wherein a plurality of the sealing members are positioned adjacent to an end portion of the threaded connection.

31. A method of coupling an expandable tubular member to a preexisting structure, comprising:

positioning the expandable tubular member and an expansion cone within the preexisting structure;

anchoring the expandable tubular member to the preexisting structure; and

axially displacing the expansion cone relative to the expandable tubular member by pulling the expansion cone through the expandable tubular member;

wherein the expandable tubular member includes a plurality of tubular members having threaded portions that are coupled to one another by the process of:

coating the threaded portions of the tubular members with a sealant;

coupling the threaded portions of the tubular members; and

curing the sealant.

32. The method of claim 31, wherein the sealant is selected from the group consisting of epoxies, thermosetting sealing compounds, curable sealing compounds, and sealing compounds having polymerizable materials.

33. The method of claim 31, further including:

initially curing the sealant prior to radially expanding the tubular members; and

finally curing the sealant after radially expanding the tubular members.

34. The method of claim 31, wherein the sealant can be stretched up to about 30 to 40 percent after curing without failure.

35. The method of claim 31, wherein the sealant is resistant to conventional wellbore fluidic materials.

36. The method of claim 31, wherein the material properties of the sealant are substantially stable for temperatures ranging from about 0 to 450 °F.

37. The method of claim 31, further including:
applying a primer to the threaded portions of the tubular members prior to coating the threaded portions of the tubular members with the sealant.

38. The method of claim 37, wherein the primer includes a curing catalyst.

39. The method of claim 37, wherein the primer is applied to the threaded portion of one of the tubular members and the sealant is applied to the threaded portion of the other one of the tubular members.

40. The method of claim 37, wherein the primer includes a curing catalyst.

41. A method of coupling a tubular member to a preexisting structure, comprising:
positioning the tubular member and an expansion cone within the preexisting structure;
anchoring the tubular member to the preexisting structure; and
axially displacing the expansion cone relative to the tubular member by pulling the expansion cone through the expandable tubular member;
wherein the tubular member includes:
a pair of rings for engaging the preexisting structure; and
a sealing element positioned between the rings for sealing the interface between the tubular member and the preexisting structure.

42. (DELETED)

43. (DELETED)

44. (DELETED)

45. A method of coupling a tubular member to a preexisting structure, comprising:

positioning the expandable tubular member and an expansion cone within the preexisting structure;

anchoring the expandable tubular member to the preexisting structure; and

axially displacing the expansion cone relative to the expandable tubular member by pulling the expansion cone through the expandable tubular member;

wherein the tubular member includes:

a first preexpanded portion;

an intermediate portion coupled to the first preexpanded portion including a sealing element; and

a second preexpanded portion coupled to the intermediate portion.

46. A method of coupling a tubular member to a preexisting structure, comprising:

positioning the expandable tubular member and an expansion cone within the preexisting structure;

anchoring the expandable tubular member to the preexisting structure; and

axially displacing the expansion cone relative to the expandable tubular member by pulling the expansion cone through the expandable tubular member by applying an axial force to the expansion cone;

wherein the axial force includes:

a substantially constant axial force; and

12 an increased axial force.

1 47. The method of claim 46, wherein the increased axial force is provided on a
2 periodic basis.

1 48. The method of claim 46, wherein the increased axial force is provided on a
2 random basis.

1 49. The method of claim 46, wherein the ratio of the increased axial force to
2 the substantially constant axial force ranges from about 5 to 40 %.

1 51. (DELETED)

1 52. (DELETED)

1 53. (DELETED)

54. (DELETED)

55. A method of coupling a tubular member to a preexisting structure, comprising:

positioning the tubular member and an expansion cone within the preexisting structure;

anchoring the tubular member to the preexisting structure by heating a portion of the tubular member; and

axially displacing the expansion cone relative to the tubular member by pulling the expansion cone through the tubular member.

56. (DELETED)

57. A method of coupling an expandable tubular member to a preexisting structure, comprising:

positioning the tubular member and an expansion cone within the preexisting structure;

explosively anchoring the tubular member to the preexisting structure; and

axially displacing the expansion cone relative to the tubular member.

58. A method of coupling an expandable tubular to a preexisting structure, comprising:

fixing the position of an expansion cone within the preexisting structure;

driving the expandable tubular member onto the expansion cone in a first direction; and

axially displacing the expansion cone in a second direction relative to the expandable tubular member;

wherein the first and second directions are different.

59. A method of coupling an expandable tubular member to a preexisting structure, comprising:

placing the expandable tubular, an expansion cone, and a resilient anchor within the preexisting structure;

releasing the resilient anchor; and

axially displacing the expansion cone within the expandable tubular member.

60. A method of coupling an expandable tubular member to a preexisting structure, comprising:

placing the expandable tubular member, an expansion cone, and an anchor into the preexisting structure;

anchoring the expandable tubular member to the preexisting structure by:

pivoting one or more engagement elements; and

axially displacing the expansion cone.

61. The method of claim 60, wherein pivoting the engagement elements includes:

actuating the engagement elements.

62. The method of claim 60, wherein pivoting the engagement elements includes:

placing a quantity of a fluidic material onto the engagement elements.

63. The method of claim 60, wherein pivoting the engagement elements includes:

displacing the expandable tubular member.

64. A method of coupling an expandable tubular member to a preexisting structure, comprising:

placing the expandable tubular member and an expansion cone into the preexisting structure;

placing a quantity of a fluidic material onto the expandable tubular member to anchor the expandable tubular member to the preexisting structure; and

axially displacing the expansion cone.

65. The method of claim 64, wherein the fluidic material comprises a barite plug.

66. The method of claim 64, wherein the fluidic material comprises a flex plug.

67. A method of coupling an expandable tubular member to a preexisting structure, comprising:

positioning the expandable tubular member and an expansion cone into the preexisting structure;

anchoring the expandable tubular member to the preexisting structure by injecting a quantity of a hardenable fluidic material into the preexisting structure;

at least partially curing the hardenable fluidic sealing material; and

axially displacing the expansion cone.

68. A method of coupling an expandable tubular member to a preexisting structure, comprising:

placing the expandable tubular member and an expansion cone within the preexisting structure; and

applying an axial force to the expandable tubular member in a downward direction.

69. A method of coupling an expandable tubular member to a preexisting structure, comprising:

placing the expandable tubular member and an expansion cone within the preexisting structure;

injecting a quantity of a first fluidic material having a first density into the region of the preexisting structure outside of the expandable tubular member; and

injecting a quantity of a second fluidic material having a second density into a portion of the expandable tubular member below the expansion cone;

wherein the second density is greater than the first density.

70. (DELETED)

71. (DELETED)

72. An apparatus for coupling a tubular member to a preexisting structure, comprising:

an expandable tubular member;

an anchoring device adapted to couple the expandable tubular member to the preexisting structure; and

an expansion cone movably coupled to the expandable tubular member and adapted to radially expand the expandable tubular member, including:

a housing including a tapered first end and a second end;

one or more grooves formed in the outer surface of the tapered first end; and

one or more axial flow passages fluidicly coupled to the grooves.

73. The apparatus of claim 72, wherein the grooves comprise circumferential grooves.

74. The apparatus of claim 72, wherein the grooves comprise spiral grooves.

75. The apparatus of claim 72, wherein the grooves are concentrated around the axial midpoint of the tapered portion of the housing.

76. The apparatus of claim 72, wherein the axial flow passages comprise axial grooves.

77. The apparatus of claim 76, wherein the axial grooves are spaced apart by at least about 3 inches in the circumferential direction.

78. The apparatus of claim 76, wherein the axial grooves extend from the tapered first end of the body to the grooves.

79. The apparatus of claim 76, wherein the axial grooves extend from the second end of the body to the grooves.

80. The apparatus of claim 76, wherein the axial grooves extend from the tapered first end of the body to the second end of the body.

81. The apparatus of claim 72, wherein the axial flow passages are positioned within the housing of the expansion cone.

82. The apparatus of claim 81, wherein the axial flow passages extend from the tapered first end of the body to the grooves.

83. The apparatus of claim 81, wherein the axial flow passages extend from the tapered first end of the body to the second end of the body.

84. The apparatus of claim 83, wherein the axial flow passages extend from the second end of the body to the grooves.

85. The apparatus of claim 83, wherein one or more of the flow passages include inserts having restricted flow passages.

86. The apparatus of claim 83, wherein one or more of the axial flow passages include filters.

87. The apparatus of claim 72, wherein the cross sectional area of the grooves is greater than the cross sectional area of the axial flow passages.

88. The apparatus of claim 72, wherein the cross-sectional area of the grooves ranges from about $2X10^{-4}$ in^2 to $5X10^{-2}$ in^2.

89. The apparatus of claim 72, wherein the cross-sectional area of the axial flow passages ranges from about $2X10^{-4}$ in^2 to $5X10^{-2}$ in^2.

90. The apparatus of claim 72, wherein the angle of attack of the first tapered end of the body ranges from about 10 to 30 degrees.

91. The apparatus of claim 72, wherein the grooves are concentrated in a trailing edge portion of the tapered first end.

92. The apparatus of claim 72, wherein the angle of inclination of the axial flow passages relative to the longitudinal axis of the expansion cone is greater than the angle of attack of the first tapered end.

93. The apparatus of claim 72, wherein the grooves include:
a flow channel having a first radius of curvature;
a first shoulder positioned on one side of the flow channel having a second radius of curvature; and
a second shoulder positioned on the other side of the flow channel having a third radius of curvature.

94. The apparatus of claim 93, wherein the first, second and third radii of curvature are substantially equal.

95. The apparatus of claim 72, wherein the axial flow passages include:
a flow channel having a first radius of curvature;

a first shoulder positioned on one side of the flow channel having a second radius of curvature; and

a second shoulder positioned on the other side of the flow channel having a third radius of curvature.

96. The apparatus of claim 95, wherein the first, second and third radii of curvature are substantially equal.

97. The apparatus of claim 95, wherein the second radius of curvature is greater than the third radius of curvature.

98. An apparatus for coupling an expandable tubular member to a preexisting structure, comprising:

an expandable tubular member;

an anchoring device adapted to couple the expandable tubular member to the preexisting structure; and

an expansion cone movably coupled to the expandable tubular member and adapted to radially expand the expandable tubular member;

wherein the expandable tubular member includes:

an annular member, having:

a wall thickness that varies less than about 8 %;

a hoop yield strength that varies less than about 10 %;

imperfections of less than about 8 % of the wall thickness;

no failure for radial expansions of up to about 30 %; and

no necking of the walls of the annular member for radial expansions of up to about 25%.

99. (DELETED)

100. (DELETED)

101. The apparatus of claim 266, wherein the sealing members are positioned adjacent to an end portion of the threaded connection.

102. The apparatus of claim 266, wherein one of the sealing members is positioned adjacent to an end portion of the threaded connection; and wherein another one of the sealing members is not positioned adjacent to an end portion of the threaded connection.

103. The apparatus of claim 266, wherein a plurality of the sealing members are positioned adjacent to an end portion of the threaded connection.

104. An apparatus for coupling an expandable tubular member to a preexisting structure, comprising:

an expandable tubular member;

an anchoring device adapted to couple the expandable tubular member to the preexisting structure; and

an expansion cone movably coupled to the expandable tubular member and adapted to radially expand the expandable tubular member;

wherein the expandable tubular member includes:

a layer of a lubricant bonded to the interior surface of the tubular member.

105. The apparatus of claim 104, wherein the lubricant comprises a metallic soap.

106. The apparatus of claim 104, wherein the lubricant is selected from the group consisting of C-Lube-10, C-PHOS-58-M, and C-PHOS-58-R.

107. The apparatus of claim 104, wherein the lubricant provides a sliding friction coefficient of less than about 0.20.

108. The apparatus of claim 104, wherein the lubricant is chemically bonded to the interior surface of the expandable tubular member.

109. The apparatus of claim 104, wherein the lubricant is mechanically bonded to the interior surface of the expandable tubular member.

110. The apparatus of claim 104, wherein the lubricant is adhesively bonded to the interior surface of the expandable tubular member.

111. The apparatus of claim 110, wherein the lubricant includes epoxy, molybdenum disulfide, graphite, aluminum, copper, alumisilicate and polyethylenepolyamine.

112. An apparatus for coupling an expandable tubular member to a preexisting structure, comprising:

an expandable tubular member;

an anchoring device adapted to couple the expandable tubular member to the preexisting structure; and

an expansion cone movably coupled to the expandable tubular member and adapted to radially expand the expandable tubular member;

wherein the expandable tubular member includes:

a pair of tubular members having threaded portions coupled to one another; and

a quantity of a sealant within the threaded portions of the tubular members.

113. The apparatus of claim 112, wherein the sealant is selected from the group consisting of epoxies, thermosetting sealing compounds, curable sealing compounds, and sealing compounds having polymerizable materials.

114. The apparatus of claim 112, wherein the sealant includes an initial cure cycle and a final cure cycle.

115. The apparatus of claim 112, wherein the sealant can be stretched up to about 30 to 40 percent without failure.

116. The apparatus of claim 112, wherein the sealant is resistant to conventional wellbore fluidic materials.

117. The apparatus of claim 112, wherein the material properties of the sealant are substantially stable for temperatures ranging from about 0 to 450 °F.

118. The apparatus of claim 112, wherein the threaded portions of the tubular members include a primer for improving the adhesion of the sealant to the threaded portions.

119. An apparatus for coupling an expandable tubular member to a preexisting structure, comprising:

an expandable tubular member;

an anchoring device adapted to couple the expandable tubular member to the preexisting structure; and

an expansion cone movably coupled to the expandable tubular member and adapted to radially expand the expandable tubular member;

wherein the expandable tubular member includes:

a pair of rings for engaging the preexisting structure; and

a sealing element positioned between the rings for sealing the interface between the tubular member and the preexisting structure.

120. (DELETED)

121. (DELETED)

122. (DELETED)

123. An apparatus for coupling an expandable tubular member to a preexisting structure, comprising:

an expandable tubular member;

an anchoring device adapted to couple the expandable tubular member to the preexisting structure; and

an expansion cone movably coupled to the expandable tubular member and adapted to radially expand the expandable tubular member;

wherein the expandable tubular member includes:

a first preexpanded portion;

an intermediate portion coupled to the first preexpanded portion including a sealing element; and

a second preexpanded portion coupled to the intermediate portion.

124. An apparatus for coupling an expandable tubular member to a preexisting structure, comprising:

an expandable tubular member;

an anchoring device adapted to couple the expandable tubular member to the preexisting structure;

an expansion cone movably coupled to the expandable tubular member and adapted to radially expand the expandable tubular member; and

a valveable fluid passage coupled to the anchoring device.

125. (DELETED)

126. (DELETED)

127. (DELETED)

128. An apparatus for coupling an expandable tubular member to a preexisting structure, comprising:

a first support member;

a second support member coupled to the first support member;

an expansion cone coupled to the first support member;

an expandable tubular member coupled to the expansion cone; and

an explosive anchoring device coupled to the second support member adapted to couple the expandable tubular member to the preexisting structure.

129. (DELETED)

130. (DELETED)

131. (DELETED)

132. (DELETED)

133. An apparatus for coupling an expandable tubular to a preexisting structure, comprising:

a support member;

an expansion cone coupled to the support member;

an expandable tubular member coupled to the expansion cone including one or more shape memory metal inserts; and

a heater coupled to the support member in opposing relation to the shape memory metal inserts.

134. An apparatus for coupling an expandable tubular member to a preexisting structure, comprising:

a support member;

an expansion cone coupled to the support member;

an expandable tubular member coupled to the expandable expansion cone; and

a resilient anchor coupled to the expandable tubular member.

135. The apparatus of claim 134, wherein the resilient anchor includes:

a resilient scroll.

136. The apparatus of claim 134, wherein the resilient anchor includes:

one or more resilient arms.

137. The apparatus of claim 134, wherein the resilient anchor includes:

one or more resilient radially oriented elements.

138. The apparatus of claim 134, wherein the resilient anchor is adapted to mate with the expansion cone.

139. An expandable tubular member, comprising:
an expandable tubular body;
one or more resilient panels coupled to the expandable tubular body; and
a release member releasably coupled to the resilient panels adapted to controllably release the resilient panels.

140. An apparatus for coupling an expandable tubular member to a preexisting structure, comprising:
a support member;
an expansion cone coupled to the support member;
an expandable tubular member coupled to the expandable expansion cone; and
an anchor coupled to the expandable tubular member, including:
one or more spikes pivotally coupled to the expandable tubular member for engaging the preexisting structure.

141. The apparatus of claim 140, further including one or more corresponding actuators for pivoting the spikes.

142. An apparatus for coupling an expandable tubular member to a preexisting structure, comprising:
a support member;
an expansion cone coupled to the support member;
an expandable tubular member coupled to the expandable expansion cone; and
an anchor coupled to the expandable tubular member, including:
one or more petal baskets pivotally coupled to the expandable tubular member.

143. The apparatus of claim 142, further including one or more corresponding actuators for pivoting the petal baskets.

144. (DELETED)

145. An apparatus for coupling an expandable tubular member to a preexisting structure, comprising:

a support member;

an expansion cone;

an expandable tubular member coupled to the expansion cone;

a coupling device coupled to the support member and an end portion of the expandable tubular member; and

a mass coupled to the end portion of the expandable tubular member;

wherein the weight of the mass is greater than about 50 to 100 % of the yield strength of the expandable tubular member.

146. An apparatus for coupling an expandable tubular member to a preexisting structure, comprising:

a support member including a fluid passage;

an expansion cone coupled to the support member;

an expandable tubular member coupled to the expansion cone;

a slip joint coupled to the expansion cone;

an end plate coupled to the slip joint;

a fluid chamber coupled to the fluid passage, the fluid chamber defined by the interior portion of the expandable tubular member between the expansion cone and the end plate.

147. A method of coupling a tubular member to a preexisting structure, comprising:

positioning the tubular member and an expansion cone within the preexisting structure;

axially displacing the expansion cone;

removing the expansion cone; and

applying direct radial pressure to the tubular member.

148. The method of claim 147, wherein axially displacing the expansion cone includes:

pressurizing at least a portion of the interior of the tubular member.

149. The method of claim 147, wherein axially displacing the expansion cone includes:

injecting a fluidic material into the tubular member.

150. The method of claim 147, wherein axially displacing the expansion cone includes:

applying a tensile force to the expansion cone.

151. The method of claim 147, wherein axially displacing the expansion cone includes:

displacing the expansion cone into the tubular member.

152. The method of claim 147, wherein axially displacing the expansion cone includes:

displacing the expansion cone out of the tubular member.

153. The method of claim 147, wherein axially displacing the expansion cone radially expands the tubular member by about 10% to 20%.

154. The method of claim 147, wherein applying direct radial pressure to the first tubular member radially expands the tubular member by up to about 5%.

155. The method of claim 147, wherein applying direct radial pressure to the tubular member includes applying a radial force at discrete locations.

156. The method of claim 147, wherein the preexisting structure includes a wellbore casing.

157. The method of claim 147, wherein the preexisting structure includes a pipeline.

158. The method of claim 147, wherein the preexisting structure includes a structural support.

159. An apparatus, comprising:

a tubular member coupled to a preexisting structure;

wherein the tubular member is coupled to the preexisting structure by the process of:

positioning the tubular member and an expansion cone within the preexisting structure;

axially displacing the expansion cone;

removing the expansion cone; and

applying direct radial pressure to the tubular member.

160. The apparatus of claim 159, wherein axially displacing the expansion cone includes:

pressurizing at least a portion of the interior of the tubular member.

161. The apparatus of claim 159, wherein axially displacing the expansion cone includes:

injecting a fluidic material into the tubular member.

162. The apparatus of claim 159, wherein axially displacing the expansion cone includes:

applying a tensile force to the expansion cone.

163. The apparatus of claim 159, wherein axially displacing the expansion cone includes:

displacing the expansion cone into the tubular member.

164. The apparatus of claim 159, wherein axially displacing the expansion cone includes:

displacing the expansion cone out of the tubular member.

165. The apparatus of claim 159, wherein axially displacing the expansion cone radially expands the tubular member by about 10% to 20%.

166. The apparatus of claim 159, wherein applying direct radial pressure to the tubular member radially expands the tubular member by up to about 5%.

167. The apparatus of claim 159, wherein applying direct radial pressure to the tubular member includes applying a radial force at discrete locations.

168. The apparatus of claim 159, wherein the preexisting structure includes a wellbore casing.

169. The apparatus of claim 159, wherein the preexisting structure includes a pipeline.

170. The apparatus of claim 159, wherein the preexisting structure includes a structural support.

171. (DELETED)

172. (DELETED)

173. The system of claim 268, wherein the lubricating fluid has a viscosity ranging from about 1 to 10,000 centipoise.

174. The system of claim 268, wherein the injecting includes:
injecting lubricating fluid into a tapered end of the expansion cone.

175. The system of claim 268, wherein the means for injecting includes:
means for injecting lubricating fluid into the area around the axial midpoint of a first tapered end of the expansion cone.

176. The system of claim 268, wherein the means for injecting includes:
means for injecting lubricating fluid into a second end of the expansion cone.

177. The system of claim 268, wherein the means for injecting includes:
means for injecting lubricating fluid into a tapered first end and a second end of the expansion cone.

178. The system of claim 268, wherein the means for injecting includes:
means for injecting lubricating fluid into an interior of the expansion cone.

179. The system of claim 268, wherein the means for injecting includes:
means for injecting lubricating fluid through an outer surface of the expansion cone.

180. The system of claim 268, wherein the means for injecting includes:
means for injecting the lubricating fluid into a plurality of discrete locations along the trailing edge portion.

181. The system of claim 268, wherein the lubricating fluid comprises:
drilling mud.

182. The system of claim 268, wherein the lubricating fluid further includes:
TorqTrim III;
EP Mudlib; and
DrillN-Slid.

183. The system of claim 268, wherein the lubricating fluid comprises:

TorqTrim III;

EP Mudlib; and

DrillN-Slid.

184. (DELETED)

185. The system of claim 269, wherein the means for lubricating the interface between the expansion cone and the tubular member includes:

means for coating the interior surface of the tubular member with a first part of a lubricant; and

means for applying a second part of the lubricant to the interior surface of the tubular member.

186. The system of claim 269, wherein the lubricant comprises a metallic soap.

187. The system of claim 269, wherein the lubricant is selected from the group consisting of C-Lube-10, C-PHOS-58-M, and C-PHOS-58-R.

188. The system of claim 269, wherein the lubricant provides a sliding friction coefficient of less than about 0.20.

189. The system of claim 269, wherein the lubricant is chemically bonded to the interior surfaces of the tubular members.

190. The system of claim 269, wherein the lubricant is mechanically bonded to the interior surfaces of the tubular members.

191. The system of claim 269, wherein the lubricant is adhesively bonded to the interior surface of the tubular members.

192. The system of claim 269, wherein the lubricant includes epoxy, molybdenum disulfide, graphite, aluminum, copper, alumisilicate and polyethylenepolyamine.

193. A system for coupling a tubular member to a preexisting structure, comprising:

positioning the tubular member and an expansion cone within the preexisting structure;

anchoring the tubular member to the preexisting structure; and

axially displacing the expansion cone relative to the tubular member by pulling the expansion cone through the tubular member;

wherein the tubular member includes:

an annular member, including:

a wall thickness that varies less than about 8 %;

a hoop yield strength that varies less than about 10 %;

imperfections of less than about 8 % of the wall thickness;

no failure for radial expansions of up to about 30 %; and

no necking of the walls of the annular member for radial expansions of up to about 25%.

194. (DELETED)

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196. (DELETED)

197. (DELETED)

198. The system of claim 270, wherein the sealing members are positioned adjacent to an end portion of the threaded connection.

199. The system of claim 270, wherein one of the sealing members is positioned adjacent to an end portion of the threaded connection; and wherein another one of the sealing members is not positioned adjacent to an end portion of the threaded connection.

200. The system of claim 270, wherein a plurality of the sealing members are positioned adjacent to an end portion of the threaded connection.

201. A system for coupling an expandable tubular member to a preexisting structure, comprising:

means for positioning the expandable tubular member and an expansion cone within the preexisting structure;

means for anchoring the expandable tubular member to the preexisting structure; and

means for axially displacing the expansion cone relative to the expandable tubular member by pulling the expansion cone through the expandable tubular member;

wherein the expandable tubular member includes a plurality of tubular members having threaded portions that are coupled to one another by the process of:

coating the threaded portions of the tubular members with a sealant;

coupling the threaded portions of the tubular members; and

curing the sealant.

202. The system of claim 201, wherein the sealant is selected from the group consisting of epoxies, thermosetting sealing compounds, curable sealing compounds, and sealing compounds having polymerizable materials.

203. The system of claim 201, further including:

means for initially curing the sealant prior to radially expanding the tubular members; and

means for finally curing the sealant after radially expanding the tubular members.

204. The system of claim 201, wherein the sealant can be stretched up to about 30 to 40 percent after curing without failure.

205. The system of claim 201, wherein the sealant is resistant to conventional wellbore fluidic materials.

206. The system of claim 201, wherein the material properties of the sealant are substantially stable for temperatures ranging from about 0 to 450 °F.

207. The system of claim 201, further including:

means for applying a primer to the threaded portions of the tubular members prior to coating the threaded portions of the tubular members with the sealant.

208. The system of claim 207, wherein the primer includes a curing catalyst.

209. The system of claim 207, wherein the primer is applied to the threaded portion of one of the tubular members and the sealant is applied to the threaded portion of the other one of the tubular members.

210. The system of claim 207, wherein the primer includes a curing catalyst.

211. A system for coupling a tubular member to a preexisting structure, comprising:

positioning the tubular member and an expansion cone within the preexisting structure;

anchoring the tubular member to the preexisting structure; and

axially displacing the expansion cone relative to the tubular member by pulling the expansion cone through the expandable tubular member;

wherein the tubular member includes:

a pair of rings for engaging the preexisting structure; and

a sealing element positioned between the rings for sealing the interface between the tubular member and the preexisting structure.

212. (DELETED)

213. (DELETED)

214. (DELETED)

215. A system for coupling a tubular member to a preexisting structure, comprising:

positioning the expandable tubular member and an expansion cone within the preexisting structure;

anchoring the expandable tubular member to the preexisting structure; and

axially displacing the expansion cone relative to the expandable tubular member by pulling the expansion cone through the expandable tubular member;

wherein the tubular member includes:

a first preexpanded portion;

an intermediate portion coupled to the first preexpanded portion including a sealing element; and

a second preexpanded portion coupled to the intermediate portion.

216. A system for coupling a tubular member to a preexisting structure, comprising:

positioning the expandable tubular member and an expansion cone within the preexisting structure;

anchoring the expandable tubular member to the preexisting structure; and

axially displacing the expansion cone relative to the expandable tubular member by pulling the expansion cone through the expandable tubular member by applying an axial force to the expansion cone;

wherein the axial force includes:

a substantially constant axial force; and

an increased axial force.

217. The system of claim 216, wherein the increased axial force is provided on a periodic basis.

218. The system of claim 216, wherein the increased axial force is provided on a random basis.

219. The system of claim 216, wherein the ratio of the increased axial force to the substantially constant axial force ranges from about 5 to 40 %.

1 220. (DELETED)

1 221. (DELETED)

1 222. (DELETED)

1 223. (DELETED)

224. A system for coupling a tubular member to a preexisting structure, comprising:

means for positioning the tubular member and an expansion cone within the preexisting structure;

means for anchoring the tubular member to the preexisting structure by heating a portion of the tubular member; and

means for axially displacing the expansion cone relative to the tubular member by pulling the expansion cone through the tubular member.

225. (DELETED)

226. A system for coupling an expandable tubular member to a preexisting structure, comprising:

means for positioning the tubular member and an expansion cone within the preexisting structure;

means for explosively anchoring the tubular member to the preexisting structure; and

means for axially displacing the expansion cone relative to the tubular member.

227. A system for coupling an expandable tubular to a preexisting structure, comprising:

means for fixing the position of an expansion cone within the preexisting structure;

means for driving the expandable tubular member onto the expansion cone in a first direction; and

means for axially displacing the expansion cone in a second direction relative to the expandable tubular member;

wherein the first and second directions are different.

228. A system for coupling an expandable tubular member to a preexisting structure, comprising:

means for placing the expandable tubular, an expansion cone, and a resilient anchor within the preexisting structure;

means for releasing the resilient anchor; and

means for axially displacing the expansion cone within the expandable tubular member.

229. A system for coupling an expandable tubular member to a preexisting structure, comprising:

means for placing the expandable tubular member, an expansion cone, and an anchor into the preexisting structure;

means for anchoring the expandable tubular member to the preexisting structure that includes means for pivoting one or more engagement elements; and

means for axially displacing the expansion cone.

230. The system of claim 229, wherein the means for pivoting the engagement elements includes:

means for actuating the engagement elements.

231. The system of claim 229, wherein the means for pivoting the engagement elements includes:

means for placing a quantity of a fluidic material onto the engagement elements.

232. The system of claim 229, wherein the means for pivoting the engagement elements includes:

means for displacing the expandable tubular member.

233. A system for coupling an expandable tubular member to a preexisting structure, comprising:

means for placing the expandable tubular member and an expansion cone into the preexisting structure;

means for placing a quantity of a fluidic material onto the expandable tubular member to anchor the expandable tubular member to the preexisting structure; and

means for axially displacing the expansion cone.

234. The system of claim 233, wherein the fluidic material comprises a barite plug.

235. The system of claim 233, wherein the fluidic material comprises a flex plug.

236. A system for coupling an expandable tubular member to a preexisting structure, comprising:

means for positioning the expandable tubular member and an expansion cone into the preexisting structure;

means for anchoring the expandable tubular member to the preexisting structure by injecting a quantity of a hardenable fluidic material into the preexisting structure;

means for at least partially curing the hardenable fluidic sealing material; and

means for axially displacing the expansion cone.

237. A system for coupling an expandable tubular member to a preexisting structure, comprising:

means for placing the expandable tubular member and an expansion cone within the preexisting structure; and

means for applying an axial force to the expandable tubular member in a downward direction.

238. A system for coupling an expandable tubular member to a preexisting structure, comprising:

means for placing the expandable tubular member and an expansion cone within the preexisting structure;

means for injecting a quantity of a first fluidic material having a first density into the region of the preexisting structure outside of the expandable tubular member; and

means for injecting a quantity of a second fluidic material having a second density into a portion of the expandable tubular member below the expansion cone;

wherein the second density is greater than the first density.

239. (DELETED)

240. (DELETED)

241. A system for coupling a tubular member to a preexisting structure, comprising:

means for positioning the tubular member and an expansion cone within the preexisting structure;

means for axially displacing the expansion cone;

means for removing the expansion cone; and

means for applying direct radial pressure to the tubular member.

242. The system of claim 241, wherein the means for axially displacing the expansion cone includes:

means for pressurizing at least a portion of the interior of the tubular member.

243. The system of claim 241, wherein the means for axially displacing the expansion cone includes:

means for injecting a fluidic material into the tubular member.

244. The system of claim 241, wherein the means for axially displacing the expansion cone includes:

means for applying a tensile force to the expansion cone.

245. The system of claim 241, wherein the means for axially displacing the expansion cone includes:

means for displacing the expansion cone into the tubular member.

246. The system of claim 241, wherein the means for axially displacing the expansion cone includes:

means for displacing the expansion cone out of the tubular member.

247. The system of claim 241, wherein the means for axially displacing the expansion cone radially expands the tubular member by about 10% to 20%.

248. The system of claim 241, wherein the means for applying direct radial pressure to the first tubular member radially expands the tubular member by up to about 5%.

249. The system of claim 241, wherein the means for applying direct radial pressure to the tubular member includes means for applying a radial force at discrete locations.

250. The system of claim 241, wherein the preexisting structure includes a wellbore casing.

251. The system of claim 241, wherein the preexisting structure includes a pipeline.

252. The system of claim 241, wherein the preexisting structure includes a structural support.

253. A method of coupling an expandable tubular member to a preexisting structure, comprising:

positioning the tubular member and an expansion cone within the preexisting structure;

anchoring the tubular member to the preexisting structure;

axially displacing the expansion cone relative to the tubular member by pulling the expansion cone through the tubular member; and

lubricating the interface between the expansion cone and the tubular member by injecting a lubricating fluid into the trailing edge of the interface between the expansion cone and the tubular member.

254. A method of coupling an expandable tubular member to a preexisting structure, comprising:

positioning the tubular member and an expansion cone within the preexisting structure;

anchoring the tubular member to the preexisting structure;

axially displacing the expansion cone relative to the tubular member by pulling the expansion cone through the tubular member; and

lubricating the interface between the expansion cone and the tubular member by coating the interior surface of the tubular member with a lubricant.

255. A method of coupling an expandable tubular member to a preexisting structure, comprising:

positioning the tubular member and an expansion cone within the preexisting structure;

anchoring the tubular member to the preexisting structure;

axially displacing the expansion cone relative to the tubular member by pulling the expansion cone through the tubular member;

coating the interior surface of the tubular member with a first part of a lubricant; and

applying a second part of the lubricant to the interior surface of the tubular member.

256. The method of claim 255, wherein the lubricant comprises a metallic soap.

257. The method of claim 255, wherein the lubricant is selected from the group consisting of C-Lube-10, C-PHOS-58-M, and C-PHOS-58-R.

258. The method of claim 255, wherein the lubricant provides a sliding friction coefficient of less than about 0.20.

259. The method of claim 255, wherein the lubricant is chemically bonded to the interior surfaces of the tubular members.

260. The method of claim 255, wherein the lubricant is mechanically bonded to the interior surfaces of the tubular members.

261. The method of claim 255, wherein the lubricant is adhesively bonded to the interior surface of the tubular members.

262. The method of claim 255, wherein the lubricant includes epoxy, molybdenum disulfide, graphite, aluminum, copper, alumisilicate and polyethylenepolyamine.

263. A method of coupling a tubular member to a preexisting structure, comprising:

injecting a lubricating fluid into the preexisting structure;

positioning the tubular member and an expansion cone within the preexisting structure;

anchoring the tubular member to the preexisting structure; and

axially displacing the expansion cone relative to the tubular member by pulling the expansion cone through the tubular member;

wherein the lubricating fluid comprises BARO-LUB GOLD-SEAL™ brand drilling mud lubricant.

264. A method of coupling an expandable tubular member to a preexisting structure, comprising:

positioning the expandable tubular member and an expansion cone within the preexisting structure;

anchoring the expandable tubular member to the preexisting structure; and

axially displacing the expansion cone relative to the expandable tubular member by pulling the expansion cone through the expandable tubular member;

wherein the expandable tubular member includes:

a first tubular member;

a second tubular member; and

a pin and box threaded connection for coupling the first tubular member to the second tubular member, the threaded connection including:

one or more sealing members for sealing the interface between the first and second tubular members.

265. A method of coupling a tubular member to a preexisting structure, comprising:

positioning the expandable tubular member and an expansion cone within the preexisting structure;

anchoring the expandable tubular member to the preexisting structure; and

axially displacing the expansion cone relative to the expandable tubular member by pulling the expansion cone through the expandable tubular member;

wherein the tubular member includes one or more slots provided at a preexpanded portion of the tubular member.

266. An apparatus for coupling an expandable tubular member to a preexisting structure, comprising:

an expandable tubular member;

an anchoring device adapted to couple the expandable tubular member to the preexisting structure; and

an expansion cone movably coupled to the expandable tubular member and adapted to radially expand the expandable tubular member;

wherein the expandable tubular member includes:

a first tubular member;

a second tubular member; and

a pin and box threaded connection for coupling the first tubular member to the second tubular member, the threaded connection including:

one or more sealing members for sealing the interface between the first and second tubular members.

267. An apparatus for coupling an expandable tubular member to a preexisting structure, comprising:

a support member;

an expandable expansion cone coupled to the support member; and

an expandable tubular member coupled to the expandable expansion cone;

wherein the expandable tubular member includes one or more anchoring devices and a slotted end portion.

268. A system for coupling an expandable tubular member to a preexisting structure, comprising:

means for positioning the tubular member and an expansion cone within the preexisting structure;

means for anchoring the tubular member to the preexisting structure;

means for axially displacing the expansion cone relative to the tubular member by pulling the expansion cone through the tubular member; and

means for injecting a lubricating fluid into the trailing edge of the interface between the expansion cone and the tubular member.

269. A system for coupling an expandable tubular member to a preexisting structure, comprising:

means for positioning the tubular member and an expansion cone within the preexisting structure;

means for anchoring the tubular member to the preexisting structure;

means for axially displacing the expansion cone relative to the tubular member by pulling the expansion cone through the tubular member; and

means for coating the interior surface of the tubular member with a lubricant.

270. A system for coupling an expandable tubular member to a preexisting structure, comprising:

means for positioning the expandable tubular member and an expansion cone within the preexisting structure;

means for anchoring the expandable tubular member to the preexisting structure; and

means for axially displacing the expansion cone relative to the expandable tubular member by pulling the expansion cone through the expandable tubular member;

wherein the expandable tubular member includes:

a first tubular member;

a second tubular member; and

a pin and box threaded connection for coupling the first tubular member to the second tubular member, the threaded connection including:

one or more sealing members for sealing the interface between the first and second tubular members.